

# SPACE BUZZ

DOD SPACE TEST PROGRAM SMC INNOVATION & PROTOTYPING DIRECTORATE

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## 2020 PROGRAM MILESTONES

- 2 Experiments Launched
- STP S-28 Awarded to VOX Space

### **#1 ACQUISITION TEAM IN THE AIR FORCE!**

*Space Test Program Rapid Space Access Team  
2019 Department of the Air Force Small Team Acquisition  
Innovation Award Recipient*

## SPACE TEST PROGRAM

**53 years...**

**283 Missions...**

**623 Experiments**

**And Counting...**

MISSION: The Space Test Program (STP) is a Department of Defense (DoD) program which demonstrates cutting-edge, emerging technologies in space prior to operational use. STP provides mission design, spacecraft acquisition, integration, launch and 1-yr on-orbit operations for DoD SERB approved research and development (R&D) and science and technology (S&T) experiments.

STP has been designated as the "front door" for all DoD S&T auxiliary payloads (APLs) on DoD, civil, and commercial launches as well as non-DoD APLs seeking launch opportunities on DoD missions. STP is also the single manager for all DoD payloads on the International Space Station (ISS), and for future manned and unmanned NASA launch vehicles.



## WELCOME TO COLONEL CARLOS QUIÑONES –

### NEW STP DIRECTOR!



Col Carlos A. Quiñones is Chief of the Department of Defense's (DoD) Space Test Program Division, Innovation and Prototyping Directorate, Space and Missile Systems Center, Kirtland Air Force Base, N.M. The division's mission is to deliver advanced space solutions through collaborative space based research and development demonstrations.

Colonel Quiñones received his commission in 1996 from the United States Air Force Reserve Officer Training Corps program at the University of Puerto Rico-Mayagüez. He is a systems engineer, flight test engineer, and an acquisition program manager who has served in a variety of line and staff positions in Special Programs, Weapons, Intelligence Production, Nuclear Weapons monitoring R&D, next generation tanker development, RPA development and production (i.e. MQ-9), and fighter aircraft flight test, including the F-22 and the F-35.

In his previous assignment, he was the Chief of Staff to the Deputy Assistant Secretary of Defense for Information and Integration Portfolio Management (DASD(I&IPM)), office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD(A&S)), Pentagon, Washington, D.C. He supported the DASD in shaping and oversight of the space, intelligence, and nuclear modernization programs executed by the DoD.

Col Quiñones has a Bachelors of Science, Mechanical Engineering, from the University of Puerto Rico, Mayagüez, Puerto Rico, a Masters of Science in Engineering Management and Systems, from the University of Dayton, a Master of Military Operational Art and Science degree from the Air University, and is a graduate of the Air War College via correspondence. Col Quiñones assignments include, Wright-Patterson AFB, OH, Patrick AFB, FL, Edwards AFB, CA, Eglin AFB, FL, and Washington, D.C.

Colonel Quinones is married to Rebecca Quinones and has two daughters Isabel and Sofia.

A very hearty welcome to the engaging and exciting Space Test Program!

## DOD MID-SERB RESULTS

The 2020 DoD Space Experiment Review Board (SERB) Mid-SERB convened on 12 May 2020. Three experiments briefed the board and were incorporated onto the FY20 DoD SERB list.

The board consists of voting members from the Office of the Secretary of Defense, the Army, Navy, Air Force, Defense Advanced Research Projects Agency (DARPA), the National Aeronautics and Space Administration (NASA), National Reconnaissance Office (NRO), and the Missile Defense Agency (MDA). The board prioritizes all experiments based on military relevance, quality of experiment, and service ranking. Once approved by SERB Chain (SAF/AQS), STP uses the list to provide mission design, spacecraft acquisition, integration, launch, and on-orbit operations for the maximum number of SERB experiments consistent with priority, opportunity, and available funding.

## INTERNATIONAL RIDESHARE INITIATIVE

### Expanding Space Access Opportunities to International Partners

The year 2020, is the year of COVID-19, telework, world-wide shutdown, and learning to live with masks and social distancing. The pandemic impacted the world and the space community endeavored to “keep calm and carry on” throughout.

The pandemic eliminated international travel and all participating nations imposed internal travel and transitioned to telework and virtual meeting formats. The challenge is each nation authorizes and uses a different virtual, SharePoint and collaborative platform.

The Spring Responsive Space Capabilities (RSC) Technical Workshop, scheduled for May 2020 was cancelled in early March, and was followed by Canada announcing cancelation of the Autumn RSC Steering Committee. The Autumn Steering Committee was scheduled for November, in Toronto, however the Canadian

government cited concerns on

### THE SKY IS NOT THE LIMIT



the expected lingering effects of the virus and the impact on large gatherings and limitations on international travel. In July, the RSC Secretariat announced a special session would be held in early 2021 in Toronto, with more information to follow. In response to board request, there will be a short virtual Autumn Steering Committee meeting on 4 November 2020.

Monthly virtual meetings are held for each of the RSC Project Arrangements and the RSC

Secretariat ensured continuing dialogue between the nations.

Also in response to COVID-19 and associated travel restrictions, it was agreed to conduct the 2021 International Space Access Review Board (ISARB) as an email submission versus an in-person meeting held in Washington D.C. No new entrants were submitted this year, and the partner nations currently on the approved list updated their missions for the board to review and re-approve.

Speaking of ISARB missions: STP manifested four of the six approved international satellites on the STP S-28 Bravo mission with an ILC of NET June 2022. Australia, Germany, and Norway accepted flight opportunity notices for manifest and are jointly working with STP on finalizing the agreement as well as engaging with the launch team at the initiation of the launch campaign.



## US RIDESHARE

The Mission Design Rideshare Team redefines government collaboration. Why the emphasis on rideshare? What is rideshare? Why does the DoD need rideshare in 2020 and beyond? The answer is simple; maximize taxpayer dollars for existing space programs. To elaborate, the Mission Design Rideshare Team maximizes existing government launches as well as cost saving solutions to the warfighter and space agencies. The Rideshare Team provides “bang for buck” by locating opportunities to satisfy space community requirements. The Rideshare Team constantly grapples with the implications of the adage “everything delays” in the space industry. From upper level winds, to technical delays, those in the space industry are familiar with the realities and implications of that statement. At the end of the day, it is rocket science and the launch mission teams strive to mitigate the myriad of potential challenges that result from complicated systems, as highlighted in comedic fashion on the new Netflix series “Space Force”. Launch delays can result in de-manifest of satellites and payloads who then become available on other launches. The Rideshare Team ensures these satellites and payloads that “dropped off” from one mission have another launch opportunity. The Rideshare Team verifies these satellites and payloads are compatible with available launches– space matchmaking – think of “EHarmony”, or the millennial dating app “Tinder.” This technique cultivates a collaborative environment encouraging government partners such as NASA, NNSA, DOE, NRO, and the DOD to work together to maximize space lift capabilities. Leading the partnership, the US Government Rideshare Working Group (USGRWG), convenes every 6 months to bring the space community, commercial, public sector, and government together. These meetings provide collaborative opportunities to discuss the future of US Space capabilities. The rideshare initiative helps avoid launching half empty rockets and answers the Congressional mandate to maximize fairing space for every government and commercial launch. If a team or mission partner requires space access, contact STP and we’ll work with you to find a ride to space.

## OTHER NEWS...

### USG RIDESHARE WORKING GROUP (USGRWG) – FORMERLY USGMMM WG (UNITED STATES GOVERNMENT MULTI-MISSION MANIFEST WORKING GROUP)

The working group occurs every six months to bring industry and government partners together to review lessons learned, discuss upcoming opportunities, and examine the future of American R&D space priorities. The Spring Working Group was cancelled due to COVID-19. The Fall USGRWG, scheduled in Los Angeles, CA in October 2020, was also canceled due to COVID-19. The team is planning for the Spring working group with details to be determined.

### DEPARTMENT OF THE NAVY SPACE EXPERIMENTAL REVIEW BOARD (SERB), 9-10 JUNE 2020

The Department of the Navy (DoN) successfully completed its first ever virtual Space Experimental Review Board (SERB) on 9 - 10 June 2020 via Microsoft Teams. The Board was comprised of 13 senior space leaders from across the Naval Space community (OPNAV N2N6F, NRL, ONR, NAVWAR, USMC, NPS, and USNA) and a representative from NASA. The experiments were reviewed for military relevance, scientific/technical quality, and quality of the proposed experiment implementation.

A total of 25 experiments were briefed and reviewed. Of those 25 experiments, nine were new experiments. Rankings were released via a results letter, signed at the OPNAV level.

## AIR FORCE SPACE EXPERIMENTAL REVIEW BOARD (SERB), 11-12 AUGUST 2020

The AF SERB convened virtually, on 11 - 12 August 2020 to review Air Force experiments proposed for sponsorship by the DoD Space Test Program. As Chair of the AF SERB, Dr. Joel Mozer organized a team comprised of Dr. Roberta Ewart, Chief Scientist, SMC; Col Jeffery Hokett, Director, Futures & Integration, USSF/S5B; and Dr. Lawrence Robertson, Chief Space Experimentalist, AFRL/RV to assess and prioritize 36 AF experiments from across seven different AF organizations (AFRL, USAFA, SMC, AFLCMC, AFGSC, AFSOC, and AFIT). Of those 36 experiments, eight were new experiments.

## ARMY SPACE EXPERIMENTAL REVIEW BOARD (SERB), 25 SEPT 2020

The Army conducted their SERB virtually on 25 September 2020 to review Army experiments proposed for sponsorship by the DoD Space Test Program. The Army SERB Chair Ms. Nora Pasion and three other senior Army space leaders reviewed five experiments for military relevance, scientific/technical quality, and quality of the proposed experiment implementation. Of the five experiments, three were new experiments. The experiments included future ISR capabilities designed to compress sensor-to-shooter timelines in the event of a near peer competition, as well as, investigating the immune response and vaccination efficacy in spaceflight.

## STP PRINCIPLE INVESTIGATOR TRAINING

STP hosted the first Space Experiment Review Board (SERB) Principal Investigator (PI) training 21 May 2020. The virtual training session attracted over 100 participants from across the United States. The training provided information required for PIs to succeed in the upcoming 2021 SERB cycle. The training included information on a wide variety of SERB-related subjects. The topics included: STP/SERB process overview, DoD SERB briefing expectations, experiment presentation tips, and instructions on how to complete the DD Form 1721-Space Test Program Flight Request. Additionally, participants learned about the STP manifest process, encompassing everything from the initial DoD SERB brief to post launch requirements. The intent of the SERB PI training is to improve the effectiveness and efficiency of the SERB process, while providing PIs and other stakeholders with information and tools necessary to collaborate with STP to provide mission design, spacecraft acquisition, integration, launch, and on-orbit operations for the maximum number of SERB experiments consistent with priority, opportunity, and available funding.

## EXPERIMENT LIAISONS – THE SHEPHERDS

Once added to the SERB list, STP pairs the experiment with an Experiment Liaison (colloquially known as “shepherds”). The Shepherds serve as the experiment’s primary STP point of contact and guides the experiment through the mission manifest process. Shepherds’ responsibilities include coordinating with US Government partners and emerging small launch providers to maximize R&D experiment launch opportunities, delivering technology payloads to space and proving next-generation capabilities for the joint warfighter.

To manifest and launch experiments, the shepherds coordinate with experiment Principal Investigators (PIs) to review items such as development timelines, design reviews, budget updates, program milestones, as well as experiment status and requirement verification. This mutually beneficial relationship between the shepherds and PIs facilitate a common goal of experiment manifestation.

Chances of flying increase:

- ...if the satellite is built, near completion, or past critical design review
- ...with flexibility in flight requirements
- ...the better the payload matches current standard interfaces (e.g: ESPA, SIV)

STP considers all SERB experiments as high priority customers, so please reach out to your assigned shepherd for assistance at any time. To that end, we recently sent out a customer satisfaction survey to help improve customer service. If you did not receive the survey, simply [click here](#). We look forward to continuing our partnerships!

## MEET YOUR STP TEAM:

Each newsletter will spotlight a member of the STP team – this edition we present:

### FIRST LIEUTENANT PATRICK G. CASA

Lieutenant Patrick G. Casa serves as the Spaceflight Integration Manager for the DoD Space Test Program (STP), Kirtland Air Force Base, N.M. As the Spaceflight Integration Manager, he provides mission design, spacecraft acquisition, integration, launch, and on-orbit operations for DoD R&D technology demonstrations; developing and proving next-generation capabilities for the joint warfighter. Lt Casa helps manage space payload readiness and mission design for 68 Space Experiment Review Board experiments worth \$1.2B. In addition, he guides emerging small launch companies through the DoD launch process proving the utility and limitations of developing commercial launch service providers in support of the DoD requirement for assured access to space.

Lieutenant Casa commissioned in 2017 through the Academy in the Class of 2017 where he majored in Systems Engineering with a focus in Astronautics. He also participated in activities ranging from sailplane instructing to working on the FalconSAT program as an operator and an engineer. Additionally, he served for two years at Laughlin AFB, TX in the 47th Student Squadron before transferring to STP.





**Space Test Program - another busy, exciting year getting your experiments into space!****STP Mid-Year in Review**

**2 experiments!**

**2 launches!**

**One team!**

**NG-13**

The NG-13 Cygnus spacecraft successfully departed the International Space Station on May 11, 2020 at 12:09 p.m., after arriving three months prior to deliver approximately 7,500 scientific experiments and supplies to the orbiting laboratory. The vehicle left with up to 8,200 pounds of cargo for disposal. Cygnus contained a single SERB experiment:

- TITE #2 – DARPA



*Northrop Grumman's Antares Rocket Lifts off for the NG-13 re-supply Mission to the International Space Station (Image: Northrop Grumman)*

**SpX CRS 20**

CRS-20 launched on a SpaceX Falcon 9 rocket utilizing the Dragon spacecraft. CRS 20 launched from Cape Canaveral Space Force Station's Space Launch Complex in Florida on 6 March 2020. A recovery team then secured Dragon on a boat for the return trip to the Port of Los Angeles, wrapping up SpaceX's 20th resupply mission to the space station and the final mission to use the first iteration of Dragon. Dragon contained the following SERB experiment:

- TITE #2 – DARPA



*Following the launch of SpaceX's 20<sup>th</sup> Commercial Resupply Services mission, the CRS-20 Dragon arrived at the international Space Station (Image: NASA)*

## UPCOMING 2020 LAUNCH MISSIONS W/SERB EXPERIMENTS

|                           |                    |   |
|---------------------------|--------------------|---|
| SpX-21                    | ILC November 2020  | Cape Canaveral Space Force Station, Florida |
| STP-S27VP                 | ILC January 2021   | Kwajalein Atoll, Marshall Islands           |
| STP-3                     | ILC February 2021  | Cape Canaveral Air Force Station, Florida   |
| STP-S27AD1                | ILC March 2021     | Kodiak, Alaska                              |
| L-111                     | ILC March 2021     | Wallops, Virginia                           |
| SpX-22                    | ILC March 2021     | Cape Canaveral Space Force Station, Florida |
| STP-S27AD2                | ILC July 2021      | Kodiak, Alaska                              |
| STP-H8                    | ILC August 2021    | Cape Canaveral Air Force Station, Florida   |
| LandSat-9                 | ILC September 2021 | Vandenberg AFB, California                  |
| SpX-24                    | ILC November 2021  | Cape Canaveral Space Force Station, Florida |
| STP-S28A                  | ILC December 2021  | Mohave Launch and Landing Facility, CA      |
| ASLON-45 (3x6U available) | ILC February 2022  | Jacksonville, Florida                       |
| SpX-25                    | ILC March 2022     | Cape Canaveral Space Force Station, Florida |
| STP-S28B                  | ILC June 2022      | Mojave, California                          |
| STP-H7                    | ILC 3Q FY 2022     | Cape Canaveral Space Force Station, Florida |
| STP-S28C                  | ILC December 2022  | Mojave, California                          |
| STP-S29                   | NET June 2023      | TBD   |
| STP-5                     | ILC 2025           | TBD   |

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*For assistance in contacting the DoD Space Test Program please  
email:*

**NEW!! Mission Design Mailbox!!**

*SMC.DODSpaceTestProgram.workflow@us.af.mil*

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Department of Defense Space Test Program  
Kirtland Air Force Base / NASA Johnson Space Center  
New Mexico / Texas

